

## LEPTINARIA LIVINGSTONENSIS, n. sp.

The shell is imperforate, oblong-conic, the length twice the diameter, pale yellow, composed of 6 moderately convex whorls. Apex rather obtuse, surface glossy, coarsely but weakly striate. The sharp outer lip is strongly arched forward at its upper third. Columellar plait strong, dividing the columellar margin into two arcs, the lower one slightly shorter and deeper. Parietal lamella present in the embryos of  $1\frac{1}{2}$  whorls. It is quite strongly developed in some shells of 6 mm. long, wanting in others. In older shells it becomes very low, and not quite one-fourth of a whorl long; or in others it disappears entirely.

Length 9.5, diam. 4.7, aperture 4.5 mm. (lamella low).

Length 11, diam. 5, aperture 5 mm. (lamella minute).

Found in rubbish about the city of Livingston, Guatemala, with *Subulina octona*, taken February 19, 1913. This shell is about the same size as *L. tamaulipensis*, but differs from that species by having a parietal lamella and an imperforate umbilical region. The last whorl is less enlarged than in *L. lamellata*, *L. elisæ* or *L. convoluta*, which resemble this species in being imperforate with a lamellate parietal wall.

The small lot taken in 1913 seemed divisible into two species, according to whether a parietal lamella was present or not, but in the abundant series collected on the second trip, it appears that the lamella is variable, being present in many but not all immature shells, but always very low or wanting in the large ones.

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SOME NOTES ON PHILOMYCUS.

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BY V. STERKI.

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In Ohio we had known only *P. (Tebennophorus) carolinienensis* Bosc. Then a few *dorsalis* Binney were found here and there. Some years ago, near Chippewa Lake, Medina Co., I found two specimens of an entirely distinct species, as listed in the Ohio catalogue; the genitals, etc., remain to be examined. The slug may be the same as *P. pennsylvanicus* Pils., but closer comparison is necessary.

Fifteen and twenty years ago, in this vicinity, I found repeatedly a form which then was taken for one of the color variations of *P. caroliniensis*, although averaging larger, and unfortunately and stupidly I did not examine it exactly. Some time ago one specimen of exactly the same was found, with about a dozen *caroliniensis*, as described by Binney and W. G. Binney. It was evident at first sight that the animal is of a distinct species, and it may be one of those named by Rafinesque, as mentioned in W. G. Binney, *Man. Amer. Land Shells*, p. 247, but I have not the literature for comparing. In order to have a designation, it may be named *biseriatus*, provisionally the specimen was 70 mm. long when fully extended. The color, over most of the back, is brownish, not grayish, somewhat irregularly mottled, and not sharply defined towards the margins. On the back there are two parallel series of 10-12 irregular black spots, streak-like when the animal is fully extended, the largest in the middle, evanescent towards the anterior and posterior ends. Irregularly distributed, mainly along the outer side of each series are irregular "white" spots; that is, they appear whitish, but the ground color is a pale tan, and there are small dots, rather granules, of a glistening bluish white, and such dots are also distributed over the balance of the mantle surface. On each side, between the series of black spots and the lateral margin, there is another series of slightly marked, cloudy, dark spots, some of them barely visible. The sole is whitish without any color tinge, while in *caroliniensis* it has a rusty tinge from minute dots of that color, especially along the margins. Along the middle, mostly in the posterior part, there is an obscure line of dark, as it is also in *caroliniensis* and some other snails. The head and the posterior end of the foot are somewhat slate-colored, the eye peduncles darker. The whole body is different in appearance from that of *caroliniensis*, and somewhat more translucent.

This description may be imperfect, but I believe that any specimens of the same kind will be readily recognized from it. While the genital organs of two *P. caroliniensis*, of the same size, were fully developed, those of "*biseriatus*" will still quite rudimentary, and nothing could be made out of them. The jaw

was of nearly the same shape in both species, but that of "*biseriatus*" was dark-colored, from horn in the upper part to black at the cutting edge, while the jaw of *caroliniensis* is of a yellowish or reddish horn. The details of the surface must be compared with more material. The radula, with its anterior (older) end torn off, had 141 (+ . . .) rows of  $45 + C + 45$  teeth of rather the same shape as those of *caroliniensis*; only the mesodonts of the outer laterals (about 13th-25th) seemed larger and longer; one of the *caroliniensis* had 210 rows of  $54 + C + 54$  teeth.

As Mr. T. D. A. Cockerell suggested, some of the so-called color variations of *P. caroliniensis* may prove to be distinct species. This, and their interrelations, and those of variation, or varieties, should be carefully ascertained and also their distribution. It may be mentioned, in this connection, that *P. wetherbyi* W. G. Binney, originally known from Kentucky, has also been found in northern Michigan, as stated by B. Walker.

Scientifically it may not be justified to publish these rudimentary notes. But there is another reason for doing so. The season is already well advanced. These interesting slugs have been badly neglected, and our knowledge of them is still far from satisfactory. Besides, they are getting more and more scarce in consequence of deforestation of the land, and will disappear in many sections before long, and faster than most other snails. Therefore, every conchologist should pay special attention to anything in this line that can be found. And, to mention it again, by the way, the term "shells" is not the proper one to be used in books and catalogues; we should say mollusks!

With respect to the generic name, I agree with W. G. Binney that the forms and species known should be ranged under one genus, whether their jaws be ribbed or not, if there are no other more significant differences. The jaw of the Chippewa slug seems to be really intermediate between the "smooth" and ribbed forms. W. G. Binney rejects the name *Philomycus*, because Rafinesque did not correctly describe this genus under that name. There is hardly a conchologist who doubts now but that Rafinesque really understood the slugs under consider-

ation. In comparing them with *Limax* and *Arion*, he did not find the mantle shield much shorter than the body, and plainly evident, like the one of those slugs, and came to the conclusion that there was none at all; conceded that it was one of the careless things he was in the habit of doing. Also, if *Philomycus* was not the same thing as *Tebennophorus*, etc., the family name Philomycidae, in the sense as used, has no claim for recognition.

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THE SHELL OF *PHILOMYCUS CAROLINIANUS* (BOSC).

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BY WILLIAM F. CLAPP.

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Through the kindness of Mr. J. Henry Blake I recently received a specimen of *Philomycus carolinianus* (Bosc.), from Munsonville, N. H., to examine for internal parasites. On laying open the mantle preparatory to removing the stomach and intestine, I discovered a rudimentary shell. When first noticed, it was not attached, either to the mantle or to the inner membrane which covers the viscera, but was floating free in the liquid in which the dissection was made. From its position I believed it to have been dislodged from some portion of the posterior fourth of the animal, between the mantle and the inner membrane. Losing immediately all interest in possible internal parasites, I gave my attention entirely to the problem of the shell, in an endeavour to ascertain its exact position, and also to discover whether it is to be considered a constant, or merely an occasional character in this species.

From Dr. R. C. Rush, of Hudson, Ohio, I received fifty specimens (M. C. Z. 48211) of living *Philomycus* in excellent condition. The specimens in this lot show slight variation in color, the majority being of the typical pattern, of a yellowish-white ground color, variegated with brownish and blackish clouds and spots, forming three ill-defined longitudinal bands, one on the center of the back, and one on each flank. There are, however, three specimens easily separated from the rest because of the reddish tinge in the brownish clouds and spots. In these specimens (M. C. Z. 48211 H) the lateral bands are